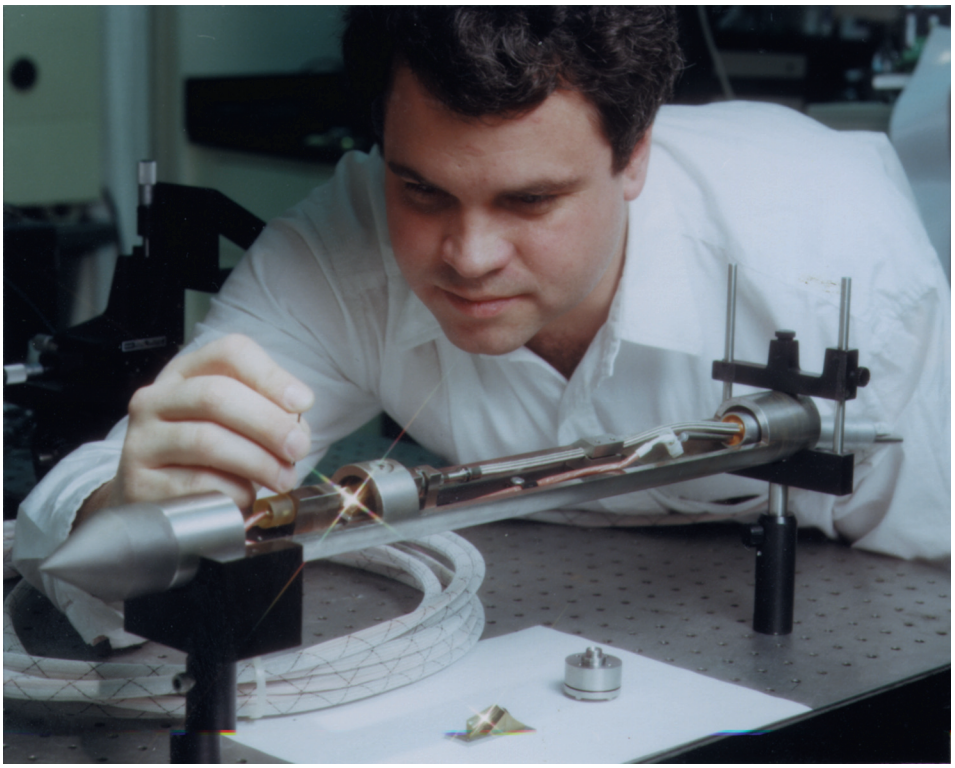
Fiber-Optic Chemical Sensors



DESCRIPTION:

The Naval Research Laboratory has developed several different types of fiber-optic chemical sensors for detecting pollutants and other chemicals in both the air and water. Sensor types include fiber-optic Raman probes for both dense nonaqueous liquids and trace levels of chlorinated hydrocarbons. Both sensors exhibit fully reversible responses.

ADVANTAGES/FEATURES:

- In situ measurement
- Real-time measurement
- Remote operation
- Highly sensitive
- Small size
- Multiplexing

- Licensable under the following US patents: 4,653,915; 4,889,986; 5,140,154; 5,525,800; 5,394,378; 5,668,779; 5,739,536; 5,949,935; 5,973,824; 6,128,429; 6,157,856; and 6,195,483 B1

APPLICATIONS:

- Detection of heavy metals in water (e.g., part per billion [ppb] levels of copper and mercury in water have been demonstrated)
- Detection of dense nonaqueous liquids (e.g., subsurface pockets of chlorinated hydrocarbons)
- Determination of free water in fuels, which can significantly decrease jet engine wear.

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